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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/816,119	04/01/2004	Stephen D. Julstrom	12624US06	8489

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EXAMINER

ENSEY, BRIAN

ART UNIT	PAPER NUMBER
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2615

DATE MAILED: 05/18/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/816,119

Applicant(s)

JULSTROM ET AL.

Examiner

Brian Ensey

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 February 2006.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 and 36-40 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 5-8, 10, 16-18 and 36-40 is/are rejected.
- 7) ☒ Claim(s) 4, 9 and 11-15 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 October 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Specification

The disclosure is objected to because of the following informalities: Page 41 of the specification contains a drawing of a graph in paragraph 0178. Per 37 CFR 1.58(a), The specification shall not contain drawings. An appropriate drawing must be submitted per 37 CFR 1.81. The draw drawing must be deleted from the specification and all text references to the drawing must be amended thereto.

Appropriate correction is required.

Drawings

The drawings are objected to because Figure 30B illustrates an embodiment of the invention but contains no details in reference to the specification. There are no reference numbers in the specification or the drawing to identify the unique features of this embodiment. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the

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renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 2, 17, 18 and 36 are rejected under 35 U.S.C. 102(b) as being anticipated by Widow U.S. Patent No. 5,737,430.

Regarding claim 1, Widrow discloses a hearing improvement device comprising: a microphone (3-7) for transducing a sound field into a first electrical signal; an amplifier (21) for amplifying the first electrical signal into a second electrical signal; and at least one inductor (22) for converting the second electrical signal into a magnetic field for coupling to at least one telecoil of a hearing aid (12), wherein the microphone is amplified and coupled through the at least one inductor to the hearing aid (See Fig 2, col. 2, lines 59-65 and col. 3, lines 14-24).

Regarding claim 2, Widrow further discloses the hearing aid comprises at least one of the following: a behind-the ear (BTE) hearing, an in-the-ear (ITE) hearing aid, an in-the-canal (ITC) hearing aid, and a completely-in-the-canal(CIC) hearing aid (See col. 3, line 26).

Regarding claim 17, Widrow further discloses the hearing aid is one of connected via a wired connection to the hearing improvement device and connected wirelessly to the bearing improvement device (See col. 3, lines 21-30).

Regarding claim 18, Widrow further discloses the hearing improvement device is adapted to connect to one of one earphone and two earphones (See col. 3, line 26, output could drive headphones).

Regarding claim 36, Widrow discloses a method for processing signals, the method comprising: transducing a sound field into a first electrical signal (3-7); amplifying the first electrical signal into a second electrical signal (21); and converting the second electrical signal into a magnetic field (22) for coupling to at least one telecoil of a hearing aid (12) (See Fig 2, col. 2, lines 59-65 and col. 3, lines 14-24).

Claims 39 and 40 are rejected under 35 U.S.C. 102(b) as being anticipated by Hall U.S. Patent No. 6,307,945.

Regarding claim 39, Hall discloses a hearing improvement device (4) comprising: a selector (15) that enables selection of at least one of the following; a first sound field (sound field from microphone on unit 4) and a second sound field (sound field from microphone 2 on unit 1); a microphone (14) for transducing the selected sound field into a first electrical signal; an amplifier for amplifying the first electrical signal into a second electrical signal; and at least one inductor (7) for converting the second electrical signal into a magnetic field for coupling to at least one telecoil of a hearing aid (8), wherein the microphone is amplified and coupled through the at least one inductor to the hearing aid (See Figs. 1 and 2 and col. 4, lines 43 to col. 5, line 14).

Regarding claim 40, Hall further discloses the selector (user operating switch 15) selects the first sound field of the second sound field based on signal strength of the first sound field and the second sound field (See col. 4, lines 59-65).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 3, 37 and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Widrow.

Regarding claims 3 and 38, Widrow discloses a hearing improvement device as claimed. Widrow further discloses the filtering the first electrical signal; and amplifying the filtered first electrical signal, producing the second electrical signal (See Fig. 2 and col. 3, lines 15-30). Widrow further teaches a band pass filter to limit the signal to the audio band. Widrow does not

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expressly disclose said filter is a high pass filter being used to reduce low-frequency components of an electrical signal and avoid excessive low-frequency coupling to the hearing aid. However, high pass filters are well known in the art and it would have been obvious to one of ordinary skill in the art at the time of the invention to use a high pass filter to limit the low frequency signals and avoid excessive low-frequency coupling to the hearing aid.

Regarding claim 37, Widrow discloses a hearing improvement device as claimed. Widrow further discloses filtering the first electrical signal prior to amplifying (See Fig. 2, Although the first electrical passes through some preamps, the combined input signal is filtered by filter (20) prior to being amplified by the power amp (21) which provides the second electrical signal). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention that the first electrical signal (the combined signal from all the microphones) is filtered before amplifying.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Widrow in view of Valente *Hearing Aids: Standards, Options, and Limitations* 1996.

Regarding claim 5, Widrow discloses a hearing improvement device as claimed. Widrow further discloses the output frequency band comprises the 1 kHz band in the audio range of human speech (See col. 3, lines 17-21). Widrow does not expressly disclose the magnetic field emanating from the hearing improvement device comprise approximately 30 mA/meter at 1 kHz, wherein 1 kHz lies in range of frequencies comprising human speech. However, it is well known in the art that a magnetic field emanating comprises approximately 30 mA/meter at 1 kHz for effectively coupling from a neck loop to a hearing aid (See Valente pg 50, lines 4-6). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention that

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Widrow provides an output of approximately 30 mA/meter at 1 kHz to meet the standard set by IEC-118-1 to provide for sufficient signal strength for proper operation.

Claims 6, 7, 8, 10 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Widrow in view of Crouch et al. U.S. Patent No. 6,320,959.

Regarding claims 6 and 16, Widrow discloses a hearing improvement device as claimed. Widrow does not expressly disclose the hearing improvement device is positioned adjacent to the hearing aid, the hearing improvement device being located behind an ear and next to the head of a user providing coupling of a magnetic field generated by a transmit inductor coil within the hearing improvement device to a receiving telecoil located within the hearing aid having uniform magnetic coupling strength over a range of telecoil positions within the hearing aid. However, Crouch teaches the inductor coil (38) of a hearing improvement device is positioned adjacent to the hearing aid, the hearing improvement device being located behind an ear and next to the head of a user providing coupling of a magnetic field generated by a transmit inductor coil within the hearing improvement device to a receiving telecoil located within the hearing aid having uniform magnetic coupling strength over a range of telecoil positions within the hearing aid (See Fig 1 and col. 3, line 51 to col. 4, line 34). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to replace the neck loop inductor of Widrow with the ear mounted coil of Crouch for greatly improved clarity (See Crouch col. 2, lines 59-64).

Regarding claim 7, Widrow discloses a hearing improvement device as claimed. Widrow does not expressly disclose the hearing improvement device comprises a behind-the-ear (BTE) transmit inductor positioned to magnetically couple with a vertically-oriented telecoil located within an ITE hearing aid wherein lines of magnetic flux generated by the BTE transmit inductor

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are arranged primarily vertically in a region within which the ITE hearing aid is located to optimize interaction with the vertically oriented telecoil located within the ITE hearing aid. However, Crouch teaches a behind-the-ear (BTE) transmit inductor (64) positioned to magnetically couple with a vertically-oriented telecoil located within an ITE hearing aid (Widrow, item 12), wherein lines of magnetic flux generated by the BTE transmit inductor are arranged primarily vertically in a region within which the ITE hearing aid is located to optimize interaction with the vertically oriented telecoil located within the ITE hearing aid (See Crouch Figs. 2, 5 and 6 and col. 4, lines 5-34). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to replace the neck loop inductor of Widrow with the ear mounted coil of Crouch for greatly improved clarity and efficient coupling (See Crouch col. 2, lines 59-64).

Regarding claim 8, Widrow discloses a hearing improvement device as claimed. Widrow does not expressly disclose the at least one inductor comprises a behind-the-ear (BTE) transmit inductor positioned to magnetically couple with a vertically-oriented telecoil located within an ITE hearing aid and wherein field strength the BTE transmit inductor is maximized by providing a core of the BTE transmit inductor being sized to be contained within a limitation of space and orientation available behind a user's outer ear or between the user's outer ear and the user's head. However, Crouch teaches a behind-the-ear (BTE) transmit inductor (64) positioned to magnetically couple with a vertically-oriented telecoil located within an ITE hearing aid (Widrow, item 12), wherein field strength the BTE transmit inductor is maximized by providing a core of the BTE transmit inductor being sized to be contained within a limitation of space and orientation (Coil 64 takes up the maximum space available in the BTE housing) available behind

a user's outer ear or between the user's outer ear and the user's head (See Crouch Figs. 4 and 6, col. 4, lines 5-22). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to replace the neck loop inductor of Widrow with the ear mounted coil of Crouch for greatly improved clarity and efficient coupling (See Crouch col. 2, lines 59-64).

Regarding claim 10, Widrow discloses a hearing improvement device as claimed. Widrow does not expressly disclose the hearing improvement device comprises a behind-the-ear (BTE) transmit inductor positioned to magnetically couple with a vertically-oriented telecoil located within an ITE hearing aid wherein the BTE transmit inductor comprises a coil, the coil comprising windings, wherein the windings of the BTE transmit inductor are used for coupling to an ITE hearing aid. However, Crouch teaches a behind-the-ear (BTE) transmit inductor (64) positioned to magnetically couple with a vertically-oriented telecoil located within an ITE hearing aid (Widrow, item 12), wherein lines of magnetic flux generated by the BTE transmit inductor are arranged primarily vertically in a region within which the ITE hearing aid is located to optimize interaction with the vertically oriented telecoil located within the ITE hearing aid (See Crouch Figs. 2, 5 and 6 and col. 4, lines 5-34). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to replace the neck loop inductor of Widrow with the ear mounted coil of Crouch for greatly improved clarity and efficient coupling (See Crouch col. 2, lines 59-64).

Allowable Subject Matter

Claims 4, 9 and 11-15 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian Ensey whose telephone number is 571-272-7496. The examiner can normally be reached on Monday - Friday 6:30 AM - 3:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sinh Tran can be reached on 571-272-7564. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks
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Alexandria, Va. 22313-1450

Or faxed to:


(571) 273-8300, for formal communications intended for entry and for informal or draft communications, please label "PROPOSED" or "DRAFT".
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BKE
May 9, 2005


SINH TRAN
SUPERVISORY PATENT EXAMINER